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Jens-Uwe Hafermalz

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EXAMINER

JOHNSON, MATTHEW A

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/581,779	<b>Applicant(s)</b> HAFERMALZ, JENS-UWE	
	<b>Examiner</b> MATTHEW A. JOHNSON	<b>Art Unit</b> 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 44 and 49 are objected to because of the following informalities:  
Regarding claim 44, the phrase "arranged as a one of the first contact faces" should read -- arranged as one of the first contact face --. Regarding claim 49, the amended language appears to be misplaced and is grammatically awkward. Claim 49 should read in a similar manner as claim 36. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:  
  
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claims 26-36, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kostrzewa (USP-5,622,085) in view of Kobayashi et al. (USP-4,593,578).  
  
Re clm 26: Kostrzewa discloses a device for pressing a rack (22) onto a pinion (14) comprising:
  - A pressure piece (38)
  - A stop element (34)

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- A spring element (32) arranged between the pressure piece and the stop element, the pressure piece and the stop element including first contact faces (bottom of 30 and top of 34) oriented toward one another and are arranged at a distance from one another in a basic position (Fig. 1)
- Wherein the pressure piece and the stop element are formed from metal (C2 L40-42 and C3 L11-15), the first contact face of the stop element is of resilient configuration (thin metal top surface of 34 is resilient)

Kostrzewa does not disclose the spring element adapted to exert a first stage of at least two stages of pressure which follow one another and press the pressure piece against the rack, a second stage of the two stages of pressure beginning as soon as the first contact faces make contact with one another, wherein the pressure piece and the stop element each have a second contact face which are oriented toward one another and, in the basic position, are at a distance from one another which greater than the distance of the first contact faces from one another, the second contact faces configured to represent an end stop for movement of the pressure piece.

Kobayashi teaches a device for pressing a rack onto a pinion comprising a pressure piece (7), a stop element (4), a spring element (6) adapted to exert a first stage (A, Fig. 3) of at least two stages ( A and B, Fig. 3) of pressure which follow one another and press the pressure piece against the rack (see also C2 L33-57), a second stage (B, Fig. 3) of the two stages of pressure beginning as soon as the first contact faces (bottom of 7e and top of 4) make contact with one another, wherein the pressure piece and the stop element each have a second contact face (bottom of 7b and top of 4)

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which are oriented toward one another (Fig. 2) and, in the basic position, are at a distance ( $\Delta t_1$ , Fig. 2) from one another which is greater than the distance ( $\Delta t_2$ , Fig. 2) of the first contact faces from one another, the second contact faces configured to represent an end stop for movement of the pressure piece for the purpose of providing a double bending characteristic that allows the rack guide to bear a higher load for the same displacement value compared with conventional rack guides (C2 L41-51).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the pressure piece of Kostrzewa such that the spring element adapted to exert a first stage of at least two stages of pressure which follow one another and press the pressure piece against the rack, a second stage of the two stages of pressure beginning as soon as the first contact faces make contact with one another, wherein the pressure piece and the stop element each have a second contact face which are oriented toward one another and, in the basic position, are at a distance from one another which greater than the distance of the first contact faces from one another, the second contact faces configured to represent an end stop for movement of the pressure piece, as taught by Kobayashi, for the purpose of providing a double bending characteristic that allows the rack guide to bear a higher load for the same displacement value compared with conventional rack guides (C2 L41-51).

Re clm 27: Kostrzewa in view of Kobayashi discloses all of the claim limitations as described above. Kobayashi further discloses the pressure piece (7) includes a circumferential surface (7a) and a pin (7c, 7e) that protrudes in a direction of the stop

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element (4), and an exposed end (end of 7e) of the pin (7c, 7e) configured as one of the first contact faces (Fig. 2).

Re clm 28: Kobayashi further discloses the pin (7c, 7e) extends coaxially with respect to an axis of the pressure piece (Fig. 2).

Re clm 29: Kostrzewa discloses the stop element (34) includes an annular circumferential surface and an end wall configured as a contact face (Fig. 1).

Re clm 30: Kobayashi further discloses the spring (6) element is arranged substantially within a hollow space of the pressure piece (7) and is clamped between a base part (near 7a, Fig. 2) of the pressure piece (7) and the end wall of the stop element (Fig. 2).

Re clm 31: Kobayashi further discloses the spring element (6) is arranged as a helical spring, in a center of the helical spring, the pin (7c, 7e), starting from the base part (near 7a) of the pressure piece, extends in a direction of the end wall (Fig. 2).

Re clm 32: Kobayashi further discloses the pin (7c, 7e) is arranged in one piece with the pressure piece (Fig. 2).

Re clms 33 and 34: While Kobayashi does not explicitly disclose a specific distance between the first contact faces and a specific distance between the second contact faces, the examiner notes that Applicant is silent with respect to any criticality or unexpected results with regard to the claimed distances. It appears that the pressure piece of Kobayashi would perform equally well at any distance within the claimed ranges. Additionally, the optimization of values to achieve predictable results is considered within the level of ordinary skill in the art.

Re clm 35: Kobayashi further discloses the exposed end (end of 7b) of the circumferential surface of the pressure piece, oriented in a direction of the stop element (4) is arranged as a second contact face (Fig. 2).

Re clm 36: Kostrzewa discloses an end of the annular circumferential surface of the stop element, which is oriented in a direction of the pressure piece, is arranged as a second contact face.

4. Claims 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kostrzewa (USP-5,622,085) in view of Kobayashi et al. (USP-4,593,578) further in view of Yang (USP-6,921,096).

Re clms 37-39: Kostrzewa in view of Kobayashi discloses all of claim limitations as described above.

While Kostrzewa discloses the pressure piece (38) is arranged in a receptacle of a steering housing (12), Kostrzewa does not disclose a sliding foil arranged between an inner wall of the receptacle space and a circumferential surface of the pressure piece, the sliding foil includes a sliding base as a bearing pint for the rack and the sliding foil is arranged in the receptacle space by an interference fit.

Yang teaches a sliding foil (180 is a thin metal sheet) arranged between an inner wall of a receptacle and a circumferential surface of a pressure piece (170), the sliding foil includes a sliding base as a bearing point for a rack (120, Fig. 2), wherein the sliding foil is arranged in the receptacle space by an interference fit (via 181) for the purpose of guiding the rack and to prevent rotation of the rack (C4 L45-51).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the device of Kostrzewa in view of Kobayashi to include a sliding foil arranged between an inner wall of the receptacle space and a circumferential surface of the pressure piece, the sliding foil includes a sliding base as a bearing pint for the rack and the sliding foil is arranged in the receptacle space by an interference fit, as taught by Yang, for the purpose of guiding the rack and to prevent rotation of the rack (C4 L45-51).

5. Claims 41-50, are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al. (USP-4,322,986) in view of Kostrzewa (USP-5,622,085).

Re clm 41: Adams discloses a device for pressing a rack (1) onto a pinion (10) comprising:

- A pressure piece (25, 17)
- A stop element (32, 42), the pressure piece and stop element having contact faces which are oriented toward one another (Fig. 5)
- The pressure piece (25, 17) and the stop element (32, 42) having first contact faces (bottom of 17 and top of 42, Fig. 5) oriented toward one another and bear against one another in a basic position (Fig. 5), the first contact face (top of 42) of the stop element (32, 42) of resilient configuration (via spring 43), the pressure piece (25, 17) and the stop element (32, 42) having second contact faces (outer end portions of 25, and top surface of 32, Fig. 5) oriented toward one another and, in the



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basic position, are at a distance from one another and are configured to represent an end stop for movement of the pressure piece.

Adams does not explicitly disclose the pressure piece and stop element are formed of metal.

Kostrzewa teaches that it is known in the art to form a pressure piece (30, 38) and a stop element (34) of metal for the purpose of providing a strong and durable supporting structure for the steering rack.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have formed the pressure piece and stop element of Adams out of metal, as taught by Kostrzewa, for the purpose of providing a strong and durable supporting structure for the steering rack.

Re clm 42: Adams discloses the pressure piece (25, 17) includes a circumferential surface (27) and a pin (17) that protrudes in a direction of the stop element (32, 42), an exposed end of the pin (17) arranged as one of the first contact faces (Fig. 5).

Re clm 43: Adams discloses the pin (17) extends coaxially with respect to an axis of the pressure piece (Fig. 5).

Re clm 44: Adams discloses the stop element (32, 42) includes an annular circumferential surface and an end wall arranged as one of the contact faces.

Re clm 45: Adams discloses the first contact face of the stop element (32, 42) is deflected by the first contact face of the pin (via spring 43).

Re clm 46: Adams discloses the contact face of the pin (17) is of cambered configuration (Fig. 5).

Re clm 47: Adams discloses the pin (17) is arranged in one piece with the pressure piece (the pin is an integral part of the pressure piece and when assembled forms one piece).

Re clm 48: Adams discloses the exposed end (outer end of 25) of the circumferential surface of the pressure piece, which is oriented in the direction of the stop element, is arranged as a second contact face (Fig. 5).

Re clm 49: Adams discloses wherein an end, which is oriented in the direction of the pressure piece, of the annular circumferential surface of the stop element (top of 32) is arranged as a second contact face (Fig. 5).

Re clm 50: Adams discloses the stop element (32, 42) is arranged as a setting screw (Fig. 5 and C5 L51-52).

### ***Response to Arguments***

6. Applicant's arguments filed 11/25/2008 have been fully considered but they are not persuasive.

Regarding claim 26, Applicant argues that Kostrzewa does not a first contact face of the stop element (34) is of resilient configuration because the pressure piece (30) does not come into contact with the stop element (34) as a result of the biasing force of the spring (32). In response, Kostrzewa recognizes that during operation, the pressure piece may be subjected to relatively high loads (C1 L21-22). While the spring

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functions to bias the rack into engagement with the pinion, when subjected to a relatively high load the spring would inherently become compressed until the pressure piece contacts the stopper.

Applicant argues that there is no motivation to combine the references. As described above, Kobayashi teaches that constructing the pressure piece to have two pressure stages instead of one allows the pressure piece to bear a higher load (as shown in Fig. 3) and further prevents the rack and pinion from being separated thus avoiding knocking sounds and tooth wear (C2 L33-57). Thus the teaching of Kobayashi improves the load bearing characteristics of the pressure piece and further improves the meshing engagement of the rack and pinion.

Regarding claim 41, Applicant argues that Adams does not disclose a contact face of a stop element is of resilient configuration because elements 17 and 42 function as a guide to prevent the rack from rotating on its axis, and not a pressure piece to keep the rack engaged with the pinion. In response, Adams discloses (see Abstract) that the peg can be spring biased to urge and support the rack member for engagement with the pinion. Therefore, the peg is considered to be a part of the pressure piece. Additionally, contact face 42 of the stop element is spring biased, thus having a resilient configuration.

Applicant argues that there is no motivation to combine the references. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is

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some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, one of ordinary skill in the art would readily recognize that forming such load bearing elements from metal would improve their strength and load bearing characteristics. This is further supported by Kostrzewa's disclosure in column 3, lines 3-8.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW A. JOHNSON whose telephone number is

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(571)272-7944. The examiner can normally be reached on Monday - Friday 9:00a.m. - 5:30p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW A JOHNSON/  
Examiner, Art Unit 3656

/Richard WL Ridley/  
Supervisory Patent Examiner, Art Unit 3656